

REMARKS

Claims 1-17 are pending in this application. Claims 1-12 stand rejected. By this Amendment, claim 1 has been amended and claim 3 has been canceled without prejudice. New claims 13-17 have been added. No new matter has been added. The amendments made to the claims do not alter the scope of these claims, nor have these amendments been made to define over the prior art. Rather, the amendments to the claims have been made to improve the form thereof. In light of the amendments and remarks set forth below, Applicants respectfully submit that each of the pending claims is in immediate condition for allowance.

Claims 1-17 are pending, claims 1-12 were rejected. By this amendment, claim 1 has been amended and new claims 13-17 have been added. No new matter has been added and claim 3 has been canceled without prejudice.

Claims 1-5 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,984,165 ("Inoue"). Applicants respectfully traverse this rejection.

Among the limitations of independent claim 1 not present in Inoue is an edge of the plate is provided with a second gas channel disposed at an edge of the plate and a second gas outlet for the second gas channel, which points towards the edge of the plate adapted to expel the gas parallel to the clamping device.

In Inoue, there is only a single style gas exit 83 which expels a gas perpendicular to a surface. As such, there is no disclosure of a second gas which is parallel to the clamping device. Therefore, claim 1 and its dependent claims are allowable over Inoue.

Inoue does not describe the apparatus that is used to hold the chip, to lower it down onto the wafer and to transfer heat to the chip, but only shows a separate arrangement of a weight 30 (figure 1 in Inoue) and an infrared heater 40, which is

arranged at a distance above the weight 30. Furthermore, the part designated as weight 30 seems only to make sense in the case of comparatively thick solder bumps 3 used in the method of Inoue, but not in conjunction with the intended very fine soldering layers for which the invention is conceived. Especially the SOLID soldering method, which is mentioned in the passage "Background of the Invention", requires an apparatus that is adapted to this method; and, as stated in the Summary of the Invention, it is an object of the invention to specify a soldering device that is suitable for the application of extremely thin metal soldering layers, as in the SOLID process. The apparatus used by Inoue seems not to meet the requirements of such a more sophisticated soldering technique. There is no indication in Inoue to modify the weight 30 in a way similar to the chip mount 13 of the application. Therefore there is no reason why the limitations concerning the chip mount should have been obvious from Inoue. Apart from the improvement that is obtained with the plate comprising the gas outlet, advantages of the invention are achieved by an appropriate construction of the chip mount. This combination of features may already be regarded as a decisive improvement over the cited prior art, whereas the further gas outlet opening 15 may be reserved to preferred embodiments.

New claim 13 also recites a chip mount comprising a lower planar area for receiving the chip, the planar area having openings around its edge connected to a channel. Applicants note that this feature is also not disclosed in Inoue.

Claims 6-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Inoue in view of U.S. Patent No. 6,288,376 ("Tsumura"). Applicants note that Tsumura was not added to cure the deficiencies in Inoue discussed above but to show additional limitations which, even if it were to show, do not cure the noted deficiencies. Therefore, Applicants respectfully submit that claims 6-8 are allowable over this combination.

Claims 9-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over GB 2,244,374 ("Rosser") in view of U.S. Patent No. 6,334,567 ("Xie"). Applicants respectfully request reconsideration and withdrawal of this rejection.

Among the limitations of independent claim 9 not present in the cited references is heating the chip from a side opposite the contact of the chip to melt the solder. As shown in Figure 2 of the present application, the chip 21 is seated by thermal radiation source 12.

In contrast, as shown in Figure 1 of Rosser, the chip 21 is heated by laser 15 and focusing apparatus 17 and the contacts on the contact side of the chip. Therefore, the explicitly recited limitation that the chip is heated from a side opposite the contact is not shown by Rosser. Xie fails to cure this deficiency in Rosser. Therefore, claims 9-11 are allowable over the cited references.

With respect to claims 13-17, Inoue does not describe that the apparatus used to hold the chip not only lowers it down on the wafer but also transfers heat to the chip. Inoue but only shows a separate arrangement of the weight 30 and an infrared heater 40 which is arranged at a distance above the weight 30 (see Figure 1 in Inoue). Furthermore, the weight 30 seems only to make sense in a case of comparatively thick solder bumps 3 used in the method of Inoue but in conjunction with fine soldering layers for which the present invention is conceived. Especially, the solid soldering method discussed in Inoue's background of the invention. The apparatus disclosed in Inoue is unable to meet the requirements of a more sophisticated soldering technique. There is no indication in Inoue to modify the weight 30 similar to the chip mount 13 disclosed in the present application. Therefore, there is no reason why the limitations concerning the chip mount are obvious or inherent in Inoue. Therefore, Applicants respectfully submit that all of the pending claims are in immediate condition for allowance.

Applicants have responded to all of the rejections and objections recited in the Office Action. Reconsideration and a Notice of Allowance for all of the pending claims are therefore respectfully requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

If the Examiner believes an interview would be of assistance, the Examiner is welcome to contact the undersigned at the number listed below.

Dated: June 28, 2007

Respectfully submitted,

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